

**REMARKS**

Claims 6-8 are pending in this application.

Claims 1-5 have been canceled without prejudice or disclaimer, and have been rewritten as new claims 6-8 to conform to United States accepted claim form. Support for new claims 6-8 appears throughout the specification and claims as originally filed. Support for new claims 6-8, appears in the specification at page 4; page 4, line 26 to page 5, line 4; and the Examples.

No new matter has been added.

The specification has been amended to correct minor typographical and grammatical errors. For example, the specification has been amended to replace the improperly spelled term "blench" or "blenching" with the properly spelled term "blanch" or "blanching," respectively. No new matter has been added.

In view of the remarks set forth below, further and favorable consideration is respectfully requested.

- I. At page 2 of the Official Action, claims 1-5 have been rejected under 35 USC § 112, second paragraph, as being indefinite.***

The Examiner asserts that the terms "long term" and "having capability" recited in claim 1, are relative terms that render the claim indefinite. In addition, the Examiner asserts that the term "cooking rice with steam" is unclear because step (b) recites a mixture. With regard to claim 3, the Examiner asserts that there is no antecedent basis in claim 1 for the limitation "pretreatment of step (a)." The Examiner also asserts

that claim 3 is unclear. Lastly, with regard to claim 4, the Examiner asserts that this claim omits essential steps because it is unclear what the sterilization process entails.

Claims 1-5 have been canceled and rewritten as new claims 6-8 to conform to United States accepted claim form. New claim 6 is an independent claim directed to a process for preparing aseptically packaged cooked rice. Claims 7-8 are each dependent on independent claim 6.

Claim 6 does not recite the terms "long term" and "having capability." Claim 6 recites hermetically sterilizing to produce a "sterilized rice mixture" and cooking the "sterilized rice mixture" with steam. Claim 6 recites the steps of "blanching" and "soaking" in place of "blenching." Support for the steps of "blanching" and "soaking" appears in the specification at page 4, lines 4-9.

New claim 6 has been written to recite hermetically sterilizing the rice mixture after filling the rice mixture in a heat-resisting plastic container at a temperature from 130°C to 150°C for 4 to 8 seconds, wherein the hermetically sterilizing is carried out from 4 to 10 times, to produce a sterilized rice mixture. Support for this passage appears in the specification at page 4; page 4, line 26 to page 5, line 4; and the Examples.

New claim 6 also recites cooking the sterilized rice mixture for 30 minutes with steam at a temperature of 100°C after adding a fixed amount of liquid for cooking, the liquid comprising a fixed amount of glucono delta lactone (GDL) sufficient to adjust the pH of the liquid and to adjust the final pH of the cooked rice to a pH of 4.0 to 5.0, to

produce cooked rice. Support for this passage appears in the specification at page 4; page 4, line 26 to page 5, line 4; and the Examples.

Claim 7 is directed to blanching and does not recite "pretreatment." Claim 8 is directed to soaking.

In view of the foregoing, it is submitted that claims 6-8 are clear and definite within the meaning of 35 USC § 112, second paragraph. Accordingly, the Examiner is respectfully requested to withdraw this rejection.

**II. At page 4 of the Official Action, claims 1-5 have been rejected under 35 USC § 103(a) as being unpatentable over Try in view of the combination of George et al. (US 6,042,863) Katsuragi et al. (US 5,756,543), Komatsu et al. (US 3,892,058), and McIntyre et al. (US 4,741,911).**

The Examiner asserts that it would have been obvious to the skilled artisan to blanch the ginseng, jujube, and chestnut, because Try teaches a popular dish which includes chestnuts and George teaches a method of improving nuts. The Examiner further asserts that it would be obvious to the skilled artisan to slice the ginseng before processing depending on the desired taste.

With regard to soaking, the Examiner asserts that it would have been obvious to the skilled artisan to soak the ginseng, jujube, and chestnut in a calcium and organic acid solution in view of Katsuragi, and that one would have been so motivated in order to gain the benefits of reduced bitterness. The Examiner further asserts that it would have been obvious to sterilize the rice mixture in view of Komatsu's process including a high temperature, high pressure, preservation process.

Regarding steaming, the Examiner asserts that it would have been obvious to the skilled artisan to include GDL before heat treatment and to cook by steaming, in view of McIntyre et al.

Try describes that "samgyetang" is a nutrient food, which is chicken soup with ginseng, rice, jujube and chestnut.

The Examiner concedes that Try is silent as to the following: (i) the method by which the cooked rice composition is made; (ii) blanching the ginseng, jujube, and chestnut; (iii) soaking the ginseng, jujube, and chestnut in a calcium and organic acid solution; (iv) sterilizing the mixture at a high temperature and a high pressure; (v) cooking the rice by steaming for 30 minutes at 100 °C in a fixed amount of GDL; and (vi) aseptically sealing the packaging for long-term preservation.

George et al. is directed to a method for removing skins and hulls from seeds including nuts. The Examiner asserts that George et al. teaches blanching by soaking in an alkaline solution at about 60°C (i.e., 50°C) for up to 20 minutes. The Examiner points to col. 3, lines 42-55. However, this passage teaches that blanching can be carried out at temperatures of **5 to 49°C** for a time period of 20 seconds to 20 minutes.

George et al. goes on to explain that blanching is preferably carried out at a temperature of 35°C for 2 to 3 minutes, and that exposure time can be increased to up to 10 minutes **if accompanied by a reduction in temperature to 21°C**. Further, George et al. teaches that higher temperatures, while theoretically possible, are undesirable because they make the nuts more fragile and thus may reduce shelf life

and ***for those reasons should be avoided***. Accordingly, George et al. ***teaches away*** from temperatures in excess of 50°C.

The Examiner also asserts that George et al. at col. 2, lines 16-26, teaches soaking in acids following blanching. Again, contrary to the Examiner's assertions, this passage teaches that while subsequent immersion in an acid bath is known, the ***acid leaves the seeds with an unpleasant bitter taste and may reduce their shelf life***. Accordingly, George et al. ***teaches away*** from subsequent acid treatment.

The Examiner asserts that George et al. teaches at col. 1, lines 34-51, that blanching is desirable to remove unpleasant or bitter taste and to prevent discoloration. Again, contrary to the Examiner's assertions, this passage teaches that the ***removal of bitter tasting skin*** from a nut by blanching removes the bitter taste that would otherwise be imparted by the skin; and likewise, the removal of colored skins prevents discoloration that would otherwise be imparted by the skin. George et al. ***does not*** teach that a blanching process absent the removal of skin removes bitter taste and prevents discoloration.

Katsuragi et al. is directed to a bitterness-relieving agent that includes an ester of a monoglyceride or diglyceride and a polycarboxylic acid, a salt thereof, or a reactive derivative of a polycarboxylic acid such as an acid anhydride (see col. 2, line 52 and col. 3, lines 17-22). The Examiner asserts the Katsuragi et al. teaches the addition of an organic acid and calcium solution, to nuts. Contrary to the Examiner's assertions, Katsuragi et al. describes that the agent is an ***ester***, i.e., an ester produced by the

esterification of the mono- or diglyceride with the polycarboxylic acid or a reactive derivative thereof (See col. 3, lines 23-31 and 36-37).

The Examiner also asserts, with regard to Katsuragi et al., that Table 2 illustrates that the bitterness intensity changes in relation to the percentage of organic acid and calcium solution added. Contrary to the Examiner's assertion, Table 2 illustrates that bitterness intensity as evaluated by individuals decreased compared to the control by the addition of each of the **esters A-H**. ***None of esters A-H contain calcium.***

Komatsu et al. is directed to a process for the preparation of high-temperature short time sterilized packaged articles.

McIntyre et al. is directed to a method for processing low-acid foodstuffs in hermetically sealed containers having food therein.

In view of the following, this rejection is respectfully traversed.

A proper case of obviousness under 35 U.S.C. §103, requires that the prior art, as a whole, must suggest the desirability of making the claimed combination and provide a reasonable expectation of success. See *In re Dow Chemical Co.*, 837 F.2d 469, 5 USPQ2d 1529 (Fed. Cir. 1988).

The *Dow* court further held that "In determining whether such a suggestion can fairly be gleaned from the prior art, the full field of the invention must be considered for the person of ordinary skill is charged with knowledge of the entire body of technological literature, including that which might lead away from the claimed invention." The court in *In re Gurley*, 27 F.3d 551 (Fed. Cir. 1994), held that "A prior

art reference may be said to *teach away* when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.” The court in *Busch & Lamb, Inc. v. Barnes-Hind/Hydro curve, Inc.*, 796 F.2d 443 (Fed. Cir. 1986), held that “A reference should be considered as a whole, and portions arguing against or teaching away from the claimed invention must be considered.”

Three requirements must be satisfied to establish a *prima facie* case of obviousness. First, the prior art relied upon, coupled with the knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference. *In re Fine*, 837 F.2d 1071, 1075 (Fed. Cir. 1988). Second, the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *Amgen Inc. v. Chugai Pharm. Co.*, 927 F.2d 1200 (Fed. Cir. 1991). Lastly, the prior art reference must teach or suggest all the limitations of the claims. *In re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970).

Regarding motivation to modify a reference, the level of skill in the art cannot be relied upon to provide the suggestion to combine references. *See Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308 (Fed. Cir. 1999). Although a prior art device “may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so.” *In re Mills*, 916 F.2d 680 at 682.

If a proposed modification would render the prior art invention being modified

unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900 (Fed. Cir. 1984). In addition, if a proposed modification or combination of prior art references would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 813 (CCPA 1959).

It is submitted that a *prima facie* case of obviousness has not been established because nothing in any of the applied references, taken alone or together, teach or suggest all of the limitations of the claims as required by *In re Wilson*.

Specifically, Try in view of Katsuragi et al. **does not teach or suggest** the process step limitations recited in claim 6, of blanching ginseng in an organic acid solution to produce pretreated ginseng, and soaking jujube and chestnut in a mixed solution comprising a calcium solution and an organic acid solution to produce a pretreated mixture. The Examiner asserts that Katsuragi et al. teaches the addition of an organic acid and calcium solution to nuts, jujube and plant extracts in order to combat bitterness.

In complete contrast to the Examiners assertion, Katsuragi et al. **does not** teach the addition of an organic acid and calcium solution. Rather, Katsuragi et al. describes that the agent is an **ester**, i.e., an ester **produced by the esterification of the mono- or diglyceride with the polycarboxylic acid or a reactive derivative thereof** (See col. 3, lines 23-31 and 36-37). Katsuragi et al. does not teach or suggest blanching in an organic acid solution or soaking in a mixed solution comprising an organic acid



solution and a calcium solution. Please see the discussion of Katsuragi et al. set forth above.

The Examiner also asserts, with regard to Katsuragi et al., that Table 2 illustrates that the bitterness intensity changes in relation to the percentage of organic acid and calcium solution added. Contrary to the Examiner's assertion, Table 2 illustrates that bitterness intensity as evaluated by individuals decreased compared to the control by the addition of each of the **esters A-H. None of esters A-H contain calcium.**

In addition, the ester of Katsuragi et al. is used as an emulsifying agent that forms a coating or film of the oil and fat component on the raw material surface, thereby impeding any leaching of a bitter-tasting component from the raw material.

Try in view of George et al. also **does not teach or suggest** the process step limitations recited in claims 6 and 14, of blanching ginseng in an organic acid solution to produce pretreated ginseng, and soaking jujube and chestnut in a mixed solution comprising a calcium solution and an organic acid solution to produce a pretreated mixture. Contrary to the Examiner's assertions, this passage teaches that while subsequent immersion in an acid bath is known, the **acid leaves the seeds with an unpleasant bitter taste and may reduce their shelf life.** Accordingly, George et al. **teaches away** from subsequent acid treatment. Please see the discussion of George et al. set forth above.

Further, with regard to George et al., the Examiner asserts that George et al. teaches blanching by soaking in an alkaline solution at about 60°C (i.e., 50°C) for up to

20 minutes. The Examiner points to col. 3, lines 42-55. However, this passage teaches that blanching can be carried out at temperatures of **5 to 49°C** for a time period of 20 seconds to 20 minutes. George et al. goes on to explain that blanching is preferably carried out at a temperature of 35°C for 2 to 3 minutes, and that exposure time can be increased to up to 10 minutes if accompanied by a reduction in temperature to 21°C. Further, George et al. teaches that while temperatures in excess of 50°C and longer exposure times are possible, they tend to make the nuts more fragile and may reduce shelf life and for those reasons ***should be avoided***. Accordingly, George et al. ***teaches away*** from temperatures in excess of 50°C.

In addition, the process of George et al. would not result in the presently achieved reduction in microorganism levels after blanching and soaking because the process of George et al. employs an alkaline solution.

Try in view of Komatsu et al. or McIntyre et al. also ***does not teach or suggest*** the process step limitations recited in claims 6 and 14, of blanching ginseng in an organic acid solution to produce pretreated ginseng, and soaking jujube and chestnut in a mixed solution comprising a calcium solution and an organic acid solution to produce a pretreated mixture. Neither Komatsu et al. nor McIntyre et al. teach or suggest blanching ginseng in an organic acid solution to produce pretreated ginseng, and soaking jujube and chestnut in a mixed solution comprising a calcium solution and an organic acid solution to produce a pretreated mixture.

In further support of the unobviousness of the presently claimed invention, set forth below in Table 1 is experimental data that illustrates the unexpectedly superior

sterilization level and texture achieved during the presently claimed steps of blanching and soaking under the claimed conditions as compared with other conditions. The main purpose of the present invention is to improve product texture while reducing an initial microorganism level.

**Table 1:**

|          | Microorganism level |                   |                   | Hardness     |                |                |
|----------|---------------------|-------------------|-------------------|--------------|----------------|----------------|
|          | Raw Material        | Pretreatment 1    | Pretreatment 2    | Raw Material | Pretreatment 3 | Pretreatment 4 |
| Ginseng  | $1.4 \times 10^6$   | $2.2 \times 10^5$ | $3.0 \times 10^2$ | 40.1         | 65.6           | 84.7           |
| Jujube   | $2.8 \times 10^3$   | $2.7 \times 10^2$ | $3.0 \times 10^1$ | 0.1          | 60.3           | 91.4           |
| Chestnut | -                   | -                 | -                 | 4.7          | 12.3           | 16.1           |

For Pretreatment condition 1 above, the raw material was blanched in 0.2 % calcium chloride aqueous solution with tap water at 60 °C for 30 minutes. For Pretreatment condition 2, the raw material was blanched in 0.2 % calcium chloride aqueous solution with 0.3 % phosphoric acid at 60 °C for 30 minutes. For Pretreatment condition 3, the raw material was blanched in 0.05 % calcium chloride aqueous solution with 0.3 % phosphoric acid at 60 °C for 30 minutes. For Pretreatment condition 4, the raw material was blanched in 0.2 % calcium chloride aqueous solution with 0.3 % phosphoric acid at 60 °C for 30 minutes.

As can be seen in Table 1 above, raw material processed under Pretreatment condition 2, resulted in significantly reduced microorganism levels in the pretreated material as compared to the microorganism levels observed in both the untreated raw material and in the raw material treated with calcium chloride solution only

(Pretreatment condition 1). Likewise, raw material processed under Pretreatment condition 4, resulted in markedly improved texture of the pretreated material as compared to the texture observed in the untreated raw material. Note that Pretreatment conditions 2 and 4 are the same.

Also, in support of the unobviousness of the presently claimed invention, set forth below in Tables 2-6 is experimental data that illustrates the unexpectedly superior preservation achieved of rice processed according to the present claims.

After production of the presently claimed nutrition rice, the following tests were performed and data was collected.

**Table 2: Water Content (target 63%)**

| Time            | Initial | 1 month | 2 moths | 3 months | 4 months | 5 months | 6 months |
|-----------------|---------|---------|---------|----------|----------|----------|----------|
| Water Content % | 63.0    | 63.2    | 63.2    | 63.1     | 63.2     | 63.4     | 63.2     |

**Table 3: pH (target 5.9-6.2)**

| Time | Initial | 1 month | 2 moths | 3 months | 4 months | 5 months | 6 months |
|------|---------|---------|---------|----------|----------|----------|----------|
| Ph   | 5.91    | 5.94    | 5.86    | 5.91     | 5.88     | 5.95     | 5.93     |

**Table 4: Color, color difference (L, a, b)**

| Time | Initial | 1 month | 2 moths | 3 months | 4 months | 5 months | 6 months |
|------|---------|---------|---------|----------|----------|----------|----------|
| L    | 83.27   | 81.72   | 81.42   | 81.78    | 81.71    | 80.95    | 81.06    |
| a    | -1.43   | -2.11   | -2.22   | -2.58    | -2.52    | -2.76    | -2.81    |
| b    | 8.24    | 8.30    | 8.23    | 8.33     | 8.37     | 8.48     | 8.45     |

**Table 5: Sensory Evaluation (5 point scale)**

| Time       | Initial | 1 month | 2 months | 3 months | 4 months | 5 months | 6 months |
|------------|---------|---------|----------|----------|----------|----------|----------|
| Preference | 3.92    | 3.98    | 4.03     | 3.88     | 3.66     | 3.44     | 3.57     |

**Table 6: Microorganism levels and Growth (N=negative)**

| Time                     | Initial | 1 mo. | 2 mo. | 3 mo. | 4 mo. | 5 mo. | 6 mo. | 7 mo. | 8 mo. | 9mo. | 10 mo. |
|--------------------------|---------|-------|-------|-------|-------|-------|-------|-------|-------|------|--------|
| Bacteria                 | N       | N     | N     | N     | N     | N     | N     | N     | N     | N    | N      |
| TR Bacteria <sup>1</sup> | N       | N     | N     | N     | N     | N     | N     | N     | N     | N    | N      |
| Growth                   | N       | N     |       |       |       |       |       |       |       |      |        |

1. Thermal resistant bacteria

As can be seen from the above Tables 2-6, there was no significant difference observed in the moisture content, pH, and the color, color difference, of rice processed according to the present claims over a period of six months.

With regard to Table 4, the data illustrated in Table 4 was measured using an analysis devices that digitized color, where "L" represents brightness (white); "a" represents red and green, where as the (+) numeric value increases, the degree of redness is indicated and as the (-) numeric value increases, the degree of greenness is shown; and "b" represents yellowness and blueness where as the (+) numeric value increases, the degree of yellowness is indicated and as the (-) numeric value increases, the degree of blueness is indicated. For this experiment, the packaged cooked rice was evaluated at the indicated times, i.e., initial, one month, etc., to determine any changes in color that could indicate changes in quality.

With regard to Table 5, the results of the sensory evaluation show no significant difference in preference over a period of six months with an insignificant decrease in preference observed from four months through six months. The data in Table 5 is based on a five-point scale and represents overall taste as perceived by individual testers based on factors such as glutinousness, texture, smell, etc., of the cooked rice.

With regard to Table 6, Table 6 indicates that rice processed according to the present claims remained sterile over a period of ten months and no bacterial growth was observed. In this experiment, microorganism levels were analyzed after maintaining rice for two weeks at 35°C in a constant temperature and constant humidity room, shortly after the production of the rice according to the present claims. Accordingly, any microorganism spores remaining in the cooked rice after production would hatch under the subject conditions. Thus, if the growth value is negative, it means that the microorganism as well as microorganism spores do not exist in the cooked rice.

In addition, in support of the unobviousness of the presently claimed invention, set forth below in Table 7 is experimental data that illustrates the unexpectedly superior sensory qualities of rice processed and sterilized according to the present claims (sterilization: 6.0 seconds at 140°C, 3.2 kgf/cm<sup>2</sup>, and repeated eight times) as compared to conventionally processed rice sterilized at 121°C for 15 minutes, 2.32 kgf/cm<sup>2</sup>.

After production of the presently claimed nutrition rice and conventional rice, the present rice and conventional rice were subjected to sensory evaluation at Rice Machining Center in Busan, Republic of Korea, and data was collected.

**Table 7: Sensory Evaluation of the Rice Processed According to the Present Claims as Compared to Conventionally Processed Rice**

| Classification | Presently Processed Rice |                | Conventionally Processed Rice |        |
|----------------|--------------------------|----------------|-------------------------------|--------|
| Shape          | round                    | square         | round                         | square |
| Appearance     | ●                        | ○              | X                             | ▲      |
| Texture        | ●                        | ○              | ▲                             | ▲      |
| Taste          | ●                        | ●              | ▲                             | ▲      |
| Feature        | overall good             | good mouthfeel | Significant lumping           |        |
| ●              | Very Excellent           |                |                               |        |
| ○              | Excellent                |                |                               |        |
| ▲              | Normal                   |                |                               |        |
| X              | Bad                      |                |                               |        |

As can be seen from the above data, rice processed and sterilized according to the present claims, exhibits unexpectedly superior appearance, texture and taste, as compared to conventionally processed rice.

In view of the remarks and data set forth herein, it is submitted that nothing in any of the applied references, taken alone or together, renders claims 6-14, obvious within the meaning of 35 USC § 103 (a). Accordingly, the Examiner is respectfully requested to withdraw this rejection.

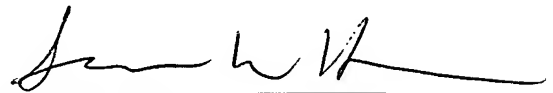
**CONCLUSION**

Based upon the above remarks, the presently claimed subject matter is believed to be patentably distinguishable over the applied references. Favorable action with an early allowance of all currently pending claims 6-14, in this application is earnestly solicited.

The Examiner is welcomed to telephone the undersigned attorney if he has any questions or comments.

In the event this paper is not timely filed, Applicant hereby petitions for an appropriate extension of time. Please charge any fee deficiency or credit any overpayment to Deposit Account No. 14-0112.

Respectfully submitted,  
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